L 31977-66

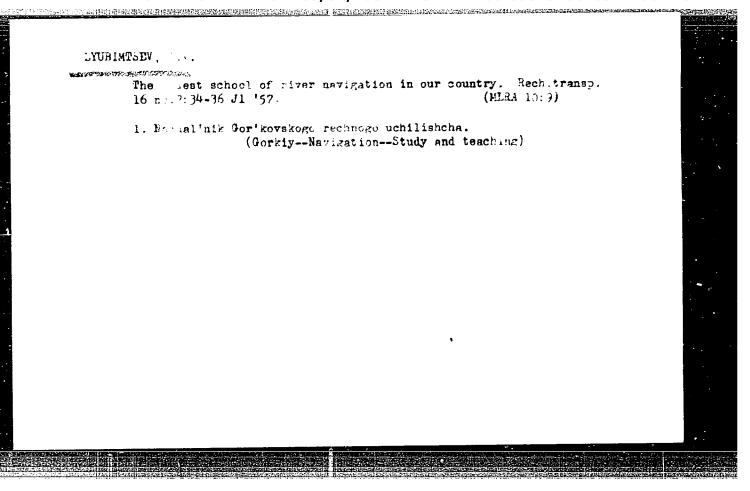ACC NR: AP6010786   /6

12--108 kc, 312--552 kc, and 812--2044 kc. A few block diagrams illustrate the patterns of conversion channels used in this equipment. In the development of the above equipment, "the leading part was played by: G. G. Borodzyuk, A. A. Leshchinskiy, A. A. L'vovich, M. S. Orliyevskiy, O. I. Astashkina, A. O. Merkulov, N. M. Driatskiy, V. N. Babkova, Ye. V. Shimyavich, T. A. Shcheglova, N. G. Myakochina, M. I. Shteyn, Z. A. Gertsik, A. I. Shevkunenko, A. V. Nikishina, I. Yu. Mirimova, and others." Orig. art. has: 14 figures and 1 table.

SUB CODE: 17, 09 / SUBM DATE: 07Sep65

Card 2/2

LYUBIMTSEV, I.

School of merchant seamen on the Volga; 75th anniversary of
the I.P.Kulibin school in Gorkiy. Rech.transp. 22 no.1:20-21
Ja '63.   (MIRA 16:2)

1. Nachal'nik Gor'kovskogo rechnogo uchilishcha.
        (Gorkiy—Nautical training schools)

LYUBIMTSEV,

The ...est school of river navigation in our country. Rech.transp.
16 n:.?:34-36 Jl '57.   (MLRA 10:9)

1. N--ial'nik Gor'kovskogo rechnogo uchilishcha.
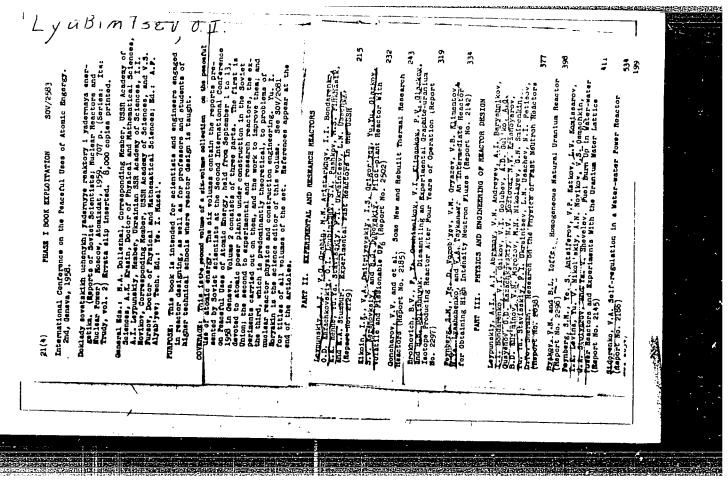   (Gorkiy--Navigation--Study and teaching)

KUZNETSOV, V.A.; ZAGAYNOVA, L.S.; LOGINOVA, N.P.; LYUBIMTSEVA, I.Ya.;
    ONOPRIYENKO, N.S.; TSIMBAL, L.Ya.
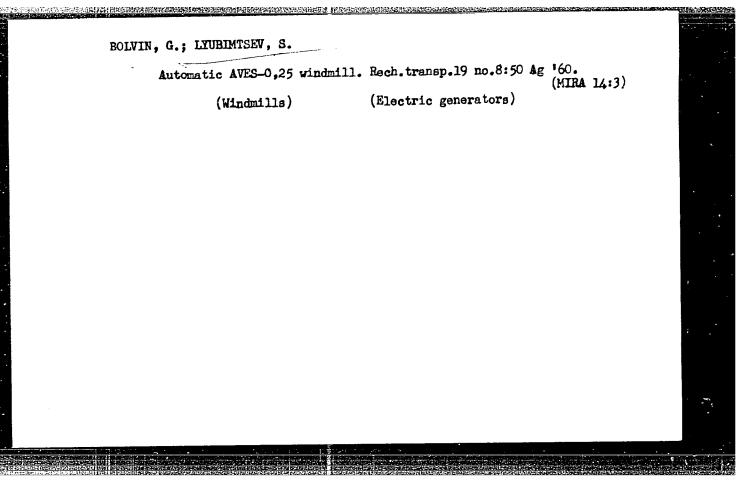
Contact differences of potential between certain liquid metals and
their alloys. Dokl. AN SSSR 138 no.1:156-158 My-Je '61.
                                            (MIRA 14:4)

1. Ural'skiy gosudarstvennyy universitet im. A.M.Gor'kogo.
Predstavleno akademikom A.N.Frumkinym.
        (Electromotive force)   (Liquid metals)

Lyubimtsev O.I.

21(4)   PHASE I BOOK EXPLOITATION   SOV/2583

International Conference on the Peaceful Uses of Atomic Energy. 2nd, Geneva, 1958.

Doklady sovetskikh uchenykh; yadernye reaktory i yadernaya energetika. (Reports of Soviet Scientists; Nuclear Reactors and Nuclear Power) Moscow, Atomizdat, 1959. 707 p. (Series: Its: Trudy, vol. 2) Errata slip inserted. 8,000 copies printed.

General Eds.: N.A. Dollezhal, Corresponding Member, USSR Academy of Sciences, A.K. Krasin, Doctor of Physical and Mathematical Sciences, A.I. Leypunskiy, Member, Ukrainian SSR Academy of Sciences, I.I. Novikov, Corresponding Member, USSR Academy of Sciences, and V.S. Fursov, Doctor of Physical and Mathematical Sciences; Ed.: A.P. Alyab'yev; Tech. Ed.: Ye. I. Mazel'.

PURPOSE: This book is intended for scientists and engineers engaged in reactor designing, as well as for professors and students of higher technical schools where reactor design is taught.

COVERAGE: This is the second volume of a six-volume collection on the peaceful use of atomic energy. The six volumes contain the reports presented by Soviet scientists at the Second International Conference on Peaceful Uses of Atomic Energy, held from September 1 to 13, 1958 in Geneva. Volume 2 consists of three parts. The first is devoted to atomic power plants under construction in the Soviet Union; the second to experimental and research reactors, the experiments carried out on them, and the work to improve them; and the third, which is predominantly theoretical, to problems of nuclear reactor physics and construction engineering. Yu. I. Koryakin is the science editor of this volume. See SOV/2581 for titles of all volumes of the set. References appear at the end of the articles.

PART II. EXPERIMENTAL AND RESEARCH REACTORS

BOLVIN, G.; LYUBIMTSEV, S.

Automatic AVES-0,25 windmill. Rech.transp.19 no.8:50 Ag '60.
(MIRA 14:3)

(Windmills)   (Electric generators)

LYUBINTSEV, S. A., KIMINSKIY, L. YU.

Conveying Machinery

Semiautomatic single-tray conveyor for pattern sections of preparatory shops. Leg. prom, 12, No. 7, 1952.

2

9. **Monthly List of Russian Accessions**, Library of Congress, November 1953. Unclassified.

25-6-13/46

SUBJECT: USSR/Food Made from Sawdust

AUTHOR: Lyubimtsev, V., Engineer

TITLE: Fodder Made from Sawdust (Korm iz drevesnykh opilok)

PERIODICAL: Nauka i Zhizn' - June 1957, #6, p 28 (USSR)

ABSTRACT: A new field in the use of atomic energy may become the production
              of fodder derived from   sawdust after exposing it to radioac-
              tive radiation. Experiments to that effect were conducted in
              the USA. Sawdust consists of 60 % carbohydrates, mainly in the
              form of cellulose. Since the gastric juice in a ruminant's sto-
              mach can convert only small quantities of it into sugar, scien-
              tists think that by exposing the sawdust to radioactive radia-
              tion it may be converted to a product that could be easily assi-
              milated by cattle. Experiments have shown that 2/3 of the cel-
              lulose exposed to beta rays could be "digested" after having
              been placed in an artificial "stomach" filled with gastric juice
              of animals. Experiments with cattle will have to prove if the
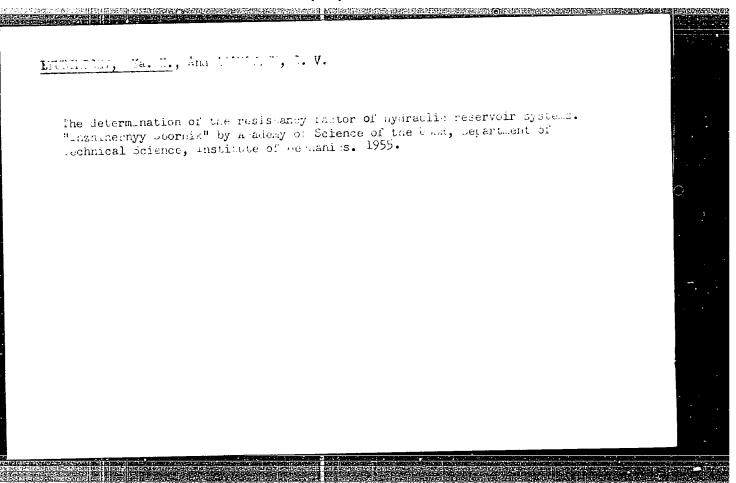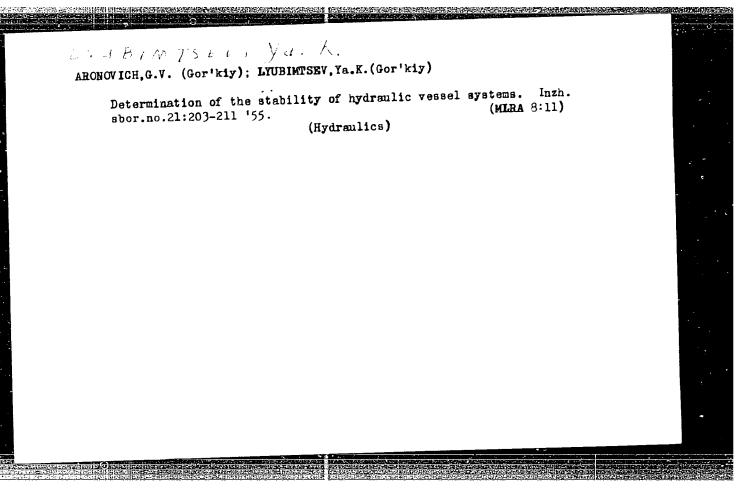   method is of any practical use.

Card 1/2

25-6-13/46

TITLE: Fodder Made from Sawdust (Korm iz drevesnykh opilok)

ASSOCIATION: -

PRESENTED BY:-

SUBMITTED:

AVAILABLE: At the Library of Congress

Card 2/2

LYUBIMTSEV, V.

Superpower bulldozer. Nauka i zhizn' 23 no.10:52 O '56.(MLRA 9:11)
(Bulldozers)

BRONSHTE̲N, Ya. M., And ̲̲̲̲̲̲, ̲. V.

The determination of the resistancy factor of hydraulic reservoir systems. "Inzhenernyy Sbornik" by Academy of Science of the USSR, Department of Technical Science, Institute of Mechanics. 1955.

ARONOVICH,G.V. (Gor'kiy); LYUBIMTSEV,Ya.K.(Gor'kiy)

Determination of the stability of hydraulic vessel systems.   Inzh.
sbor.no.21:203-211 '55.   (MLRA 8:11)
                              (Hydraulics)

PA - 2191

AUTHOR: LYUBIMTSEV, YA. K., GOR'KIY
TITLE: The conditions for the Stability of the Steady Modes of Opera-
           tion of a Hydro-Electric Plant with a Differential Balancing
           Reservoir. (Usloviya ustoychivosti statsionarnykh rezhimov GES
           s differentsial'nym uravnilel'nym reservuarom, Russian)
PERIODICAL: Izvestiia Akad. Nauk SSSR, Otdel. Tekhn, 1957, Vol   , Nr ,
           pp 48-56 (U.S.S.R.)
                                               Reviewed: 1 / 19
           Received: 3 / 1957
ABSTRACT: By means of a second method developed by LYAPUNOV, satisf...ry
           conditions for the stability of the steady modes of operat... of
           hydro-electric plants with a differential balancing reservoir
           the case of finite fluctuations are set up (lack of a counter
           current in the pressure penstock and neglect of water inertia in
           the reservoir). Besides, the correctness of the generally as-
           sumed (but mathematically not accurately confirmed) criterion for
           the stability of the system is proved in detail. First, equations
           for the motion of the system, the equation for untearability the
           equation for the relations between the levels and the equation for
           regulation are written down. Next, the second method by LYAPUNOV
           is applied and, according to the theorem of SYLVESTER, the three
           conditions are written down in order that the quadratic form of
           the derived equation be positively determined. The first deriva-
           tion of the function V by LYAPUNOV is found. In order to determine

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PA - 2191

The Conditions for the Stability of the Steady Modes of
Operation of a Hydro-Electric Plant with a Differential Balancing
Reservoir.

the domain of stability, a surface $V'' = 0$ is constructed and
only that part is taken into account where $V'' \cdot \quad 0$ Such a domain
really exists and comprises the point 0 Confining oneself to
dealing only with nonlinearity in the aforementioned system of
equations, the derivation V is simplified. This can also be
ascertained according to the method developed by LUR'E and
LETOV. (2 illustrations)

ASSOCIATION: Research Institute for Technical Physics at Gorkiy
PRESENTED BY:
SUBMITTED: 14.8.1956
AVAILABLE: Library of Congress

Card 2/2

LYUBIMTSEV, Ya. K.: Master Phys-Math Sci (diss) -- "The stability of station-
ary operation of hydroelectric power plants with differential equalizing
reservoirs, and with n cylindrical reservoirs". Gor'kiy, 1959. 4 pp (Gor'kiy
Res Phys-Tech Inst GIFTI of the Gor'kiy State U im N. I. Lobachevskiy), 110
copies (KL, No 6, 1959, 124)

06519 SOV/141— 58-1-9/14

AUTHOR: Lyubimtsev, Ya. K.

TITLE: Conditions Sufficient for the Overall Stability of a System of n Hydraulic Reservoirs

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy, Radiofizika, 1958, Nr 1, pp 96-105 (USSR)

ABSTRACT: A system for feeding a turbine is assumed to consist of a reservoir having a constant level and n equalizing reservoirs, all of them being connected by a common shaft; the first n - 1 reservoirs contain lumped resistances (see the figure). It is necessary to determine the conditions sufficient for the overall stability of the system under the assumption that all the elements of the systems are defined and that its output power is constant. The operation of the system can be described by Eqs (1.1), while the condition of the constant power output is described by Eq (1.2). The symbols in Eqs(1.1) are explained in the figure. The additional symbols are as follows: z_i is the height of the level in the i-th equalizing reservoir, Q is the outflow of the liquid, v_i is the

Card 1/4

Conditions Sufficient for the Overall Stability of a System of n
Hydraulic Reservoirs

velocity of flow and $P_i v_i^2$ is the loss of pressure in the
i-th portion of the hydraulic system. The symbol O corres-
ponds to a new equilibrium regime. If it is assumed that
$v > 0$ and if the condition (1.2) is combined with Eqs (1.1),
the system of differential equations can be written as
Eqs (1.3). In this the notation defined by Eqs (1.4) is adop-
ted. Now, instead of Eqs (1.3) , a system of perturbation
equations is constructed in such a way that $y_i = y_{io} + u_i$
and $x_i = x_{io} + \xi_i$, where y_{io} and x_{io} can be found from
the equilibrium condition and are given by Eqs (1.5). The
perturbation equations are written as Eqs (1.6). The sys-
tem is first analyzed for the case when the reservoirs do
not contain any resistances, which is equivalent to $k_i' = 0$.

The conditions of stability for the system can be found by
the second Lyapunov method. The Lyapunov function is given
by Eq (2.1). The coefficients of Eq (2.1) should satisfy
2n - 1 conditions which are expressed by Eqs (2.3). Secondly,
they should satisfy the conditions expressed by Eqs (2.4). The
derivative of the Lyapunov function can therefore be expressed

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Conditions Sufficient for the Overall Stability of a System of n
Hydraulic Reservoirs

as Eq (2.5). In a system with n = 1 , the conditions (2.3)
and (2.4) can be represented by Eq (3.1). The Lyapunov func-
tion is given by Eq (3.2) and the conditions of stability are
expressed by Eqs (3.4). If the n - 1 equalizing reservoirs
contain lumped resistances, the derivative of the Lyapunov
function is given by Eq (4.1) where $\dot{V}_0$ is identical with

Eq (2.5). The equation can be employed to investigate a
system consisting of two reservoirs, the first of which con-
tains a resistance. The coefficients of the Lyapunov funct-
ion for this case are expressed by the first equations on
p 104. The system in which at least y_i $<$ 1   is

also considered. In this case the basic formulae are written
as Eqs (5.3) while the derivative of the Lyapunov function is
given by Eq (5.3). The author expresses his gratitude to

Card 3/4

06519 SOV/141-58-1-9/14

Conditions Sufficient for the Overall Stability of a System of n
Hydraulic Reservoirs

G. V. Aronovich and N. A. Kartvelishvili for a number of
valuable remarks. The paper contains 1 figure and 4 Soviet
references.

ASSOCIATION: Issledovatel'skiy fiziko-tekhnicheskiy institut pri
Gor'kovskom universitete (Physics Engineering Research In-
stitute of   Gor'kiy University)

SUBMITTED: April 21, 1957.

Card 4/4

LYUBIMTSEV, Ya.K.

Stability of stationary conditions in hydroelectric power stations equipped with a differential compensating reservoir. Izv.vys.ucheb. zav.; radiofiz. 1 no.2:187-190 '58.   (MIRA 11:11)

1. Issledovatel'skiy fiziko-tekhnicheskiy institut pri Gor'kovskom universitete.
                          (Hydraulics)

ARONOVICH, G.V.; LYUBIMTSEV, Ya.K.

Effect of water inertia in a turbine pipe system on the operational
stability of hydroelectric power plants with regulating reservoirs.
Izv.vys.ucheb.zav.; radiofiz. 3 no.3:538-540 '60. (MIRA 13:8)

1. Nauchno-issledovatel'skiy fiziko-tekhnicheskiy institut pri
Gor'kovskom universitete.
            (Hydroelectric power stations)

ARONOVICH, G.V.; BELYUSTINA, L.N.; KARTVELISHVILI, N.A.; LYUBIMTSEV, Ya.K.

Problems of the stability of stationary operating conditions of hydroelectric generating stations and power systems viewed as problems of the theory of oscillations. PMTF no.3: 56-73 S-O '61.
(MIRA 14:8)

(Hydroelectric power stations) (Oscillations)

LYUBIMTSEV, YA. K., ARONOVICH, J. V., BELYUSTINA, L. N. and MARTVELISHVILI, N. A.

"Application of oscillatory system analysis to stability problems
in the steady-state operation of hydroelectric stations and power
system."

Paper presented at the Intl. Symposium on Nonlinear Vibrations, Kiev, USSR,
9-19 Sep 61

Research Institute of Technical Physics, Gorky State University, Gorky

SHEYN, T.I., nauchnyy sotrudnik; LYUBIMTSEVA, G.P., nauchnyy sotrudnik

Effect of loads at high temperatures on the characteristics of enant fibers. Tekst.prom. 23 no.11:90-94 N '63.   (MIRA 17:1)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut iskusstvennogo volokna.

L 00751-66   EWT(m)/EPF(c)/EWP(j)/T/EWA(c)   RPL   RM

ACCESSION NR: AP5020973   UR/0190/65/007/008/1447/1451

AUTHOR: Sheyn, T. I.; Kudryavtsev, G. I.; Lyubimtseva, G. P.

TITLE: Synthesis and investigation of fiber-forming polyamide based on 1,4-cyclohexane-bis-methylamine

SOURCE: Vysokomolekulyarnyye soyedineniya, v. 7, no. 8, 1965, 1447-1451

TOPIC TAGS: synthetic fiber, polyam', adipic acid, polycondensation, caprone

ABSTRACT: Conditions for the synthesis and some properties of fiber-forming polyamides from 1,4-cyclohexane-bis-methylamine(I) and adipic acid (II) were determined. Two-stage polycondensation proved suitable: a prepolymer was made by preliminary polycondensation of equimolar amounts of I and II in a sealed container under a nitrogen atmosphere, after which the container was opened and the polycondensation completed. A temperature of 280C for the solid phase poly- condensation resulted in a polyamide suitable for fiber drawing. 260C was too low, unless a plasticizer (o-hydroxydiphenyl) was incorporated, in which case the

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L 00751-66
ACCESSION NR: AP5020973

elastic polymer could also be drawn. The addition of a thermostabilizer (di-β - naphthyl-p-phenylenediamin'e) had little effect on the final polycondensation rate but gave products with high molecular weights. Physico-mechanical, physico chemical and thermo mechanical properties of polyamide fibers made under model conditions were determined. The fibers made from I and II were superior to those of caprone—the melting temperature was higher (341-342C) and the modulus of elasticity and the thermomechanical properties were better. "The trans-TsGMA (1,4-cyclohexane-bis-methylamine) we used was synthesized first in the IOKh AN SSSR laboratory by L. Kh. Freydlin and T. A. Sladkov and then by M. I. Yakushkin and L. I. Gal'perin in the VNIINeftekhimicheskikh protsessov and was kindly supplied to us for investigation." Orig. art. has: 2 tables and 3 figures
ASSOCIATION: Vsecoyuznyy nauchno-issledovatel'skiy institut iskusstvennogo volokna(All-State Scientific Research Institute of Artificial Fiber)
SUBMITTED: 02Oct64   ENCL: 00   SUB CODE: MT, GC

NR REF SOV: 007   OTHER: 002

Card 2/2

23815
S/020/61/138/001/020/023
B101/B231

26. 2531

AUTHORS: Kuznetsov, V. A , Zagaynova, L S., Loginova, N P ,
Lyubimtseva, I. Ya., Onopriyenko. N S., and Tsimbal. L. Ye

TITLE: Contact potential differences between some liquid metals and
their alloys

PERIODICAL: Doklady Akademii nauk SSSR, v. 138. no. 1, '96'. 156-158

TEXT: This is to continue the authors' research on contact potential
differences between liquid metals and their alloys (ZhFKh. 34, '349 (1960))
The contact potential differences were determined thermoelectronically by
recording the volt-ampere characteristics of a diode with once the pure
metal and then the alloy being used as anode   Based upon the assumption
that the contact potential difference is approximately equal to the
difference of the zero charge potential and on the grounds that there is
a great difference between the zero charge potentials. it appears
advantageous to determine the contact potential difference (CPD)
particularly between Zn. Cd. Ti. and Bi on the one hand, and their
respective alloys with Te on the other   Difficulties that arose were due

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S/020/61/138/001/020/023
B101/B25

Contact potential differe... ...tween

to the fact that Sn and Td have an excessively high vapor pressure and
that a number of these metals, in lieve of Bi, form compounds with Te
The contact potential difference was, therefore, determined: 1) for Sn
and Sn-Tl alloy (23.8 % Tl) (Fig 1); 2) for Tl and Tl-Sn alloy (49.8 % Sn)
(Fig. 2A); 3) for Tl and Tl-Te alloy (30.5 % Te, (Fig 2B); 4) for Bi and
Bi-Te alloys (3.6 % Te and 9 % Te). Bi and Sn were to be fixed among the
purity class B-3 (V-3); Tl contained about 0.02 % of Fe, Pb, and Cd
impurities (spectroscopically determined by R. Dutkina) Te was twice
distilled in a vacuum. All the measurements were made at a temperature
of 450°C   The method applied was described in the above-mentioned
reference   Results; for Sn/Sn -Tl CPD = 0.17 v; for Tl/Tl -Sr CPD = 0 25 v;
for Tl/Tl -Te CPD = 0.65 v; for Bi/Bi -Te CPD = 0.3 and 0.35 v. respectively
Fig. 3 shows the zero charge potentials for Sn-Te alloys as a function of
their composition. This implies that the CPD between the metals and their
alloys under consideration is close to the difference of the zero charge
potentials, which has proved to be valid also for Bi/Bi -Te (difference of
zero charge potential with 3 6 % Te equal to 0.25 v, with 9 % Te equal to
0.33 v)   The fact that the volt-ampere characteristics of Tl-Sn, Tl-Te,
and Bi-Te alloys are shifted in positive direction indicates that the work

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S/020/61/138/001/020/0

Contact potential differences between...   B10./323.

function in these alloys is greater than in pure metal. In conformity
with the zero charge potential difference (Fig. 3), Sn-Tl alloy show
the opposite effect. The authors thank Academician A. N. Frumkin for
discussion. There are 4 figures and 5 references: 4 Soviet-bloc and
1 non-Soviet-bloc.

ASSOCIATION: Ural'skiy gosudarstvennyy universitet im. A. M. Gor'kovo
                (Ural State University im. A. M. Gor'kiy)

PRESENTED: December 10, 1960, by A. N. Frumkin, Academician

SUBMITTED: November 25, 1960 .

Card 3/5 3

LYUBIN, A. P.

Cleaning of insulators in conjunction with the repair of communica-
ion lines. Avtom. telem. i sviaz' 4 no.9:27-28 S '60.
                                            (MIRA 13: 9)

1. Zamestitel' nachal'nika Kishinevskoy distantsii signalizatsii i
svyazi Moldavskoy dorogi.
                    (Electric lines—Poles)
                  (Electric insulators and insulation)

LYUBIN, A.P.

Combating interference caused by static charges. Avtom., telem i
sviaz' 4 no.10:30-31 0 '60.   (MIRA 13:10)

1. Zamestitel' nachal'nika Kishinevskoy distantsii signalizatsii i
svyazi Moldavskoy dorogi.
          (Railroads--Communication systems)

LYUBIN, A.P.

Use of a tractor for removing rail struts. Avtom., telem. i
sviaz' 5 no.3:43 Mr '61.   (MIRA 14:9)

1. Zamestitel' nachal'nika Kishinevskoy distantsii signalizatsii
i svyazi Moldavskoy dorogi.
                    (Electric lines—Poles)

LYUBIN, A.P.

Reception of railroad communication broadcasts at intermittent
stations. Avtom., telem. i sviaz' 5 no.6:39 Je '61. (MIRA 14:9)

1. Zamestitel' nachal'nika Kishinevskoy distantsii signalizatsii
i svyazi Moldavskoy dorogi.
                    (Railroads--Communication systems)

RUMYANTSEV, P.K.; RYZHKOV, M.S.; ALEKSEYEV, P.A.; IVANOV, A.I.;
       TAGAN, I.L., elektromekhanik; LYUBIN, A.P.

       Discussion of the article "Pedal or track circuit." Avtom.,
       telem. i sviaz' 9 no.10:38-39 O '65.   (MIRA 18:11)

       1. Starshiy elektromekhanik Velikolukskoy distantsii Oktyabr'skoy
       dorogi (for Rumyantsev). 2. Starshiy elektromekhanik Mikun'skoy
       distantsii Severnoy dorogi (for Ryzhkov). 3. Zamestitel' nachal'-
       nika Nyandomskoy distantsii Severnoy dorogi (for Alekseyev).
       4. Glavnyy inzh. Nyandomskoy distantsii Severnoy dorogi (for
       Ivanov). 5. Krasnolimanskaya distantsiya Donetskoy dorogi (for
       Tagan). 6. Glavnyy inzh. Kishinevskoy distantsii signalizatsii i
       svyazi Odessko-Kishinevskoy dorogi (for Lyubin).

Optimum reaction for refinery sirups. B. O. Lyubin and A. V. Velichkovskii.
Nauk. Zapiski Tsukrovoi Prom. 9, No. 16, 133–48(1932). Facts About Sugar 27, 253–4.—
Solns. of 2nd sugars and low-grade sirups were warmed at different temps. and different
p_H values. The alky. perceptibly fell on continued heating; thus, a soln. of p_H 8.1
became neutral (p_H 6.9–7.1) after 1 hour's heating. Second sugars of 95.6° purity, a
color of 43° Stammer, and reactions of p_H 6.4–8.1 showed no noteworthy decompn
of sucrose or increase of color after 3 hours' heating at 80°, but if, after such solns. had
been stabilized at this temp., the alky. was increased above p_H 7, there was destruction
of reducing substances and increase in color. Solns. with reactions between p_H 6.2
and 8.4 underwent no noteworthy change when heated 2 hrs. at 75°, but after 6–9 hrs
at this temp. the more acid products showed an increase of reducing substances and
the more alk. products an increase of color. Conclusion: The clarification of 2nd sugar
sirups at 75–80)° is practicable at reactions between p_H 6.2 and 8.0. If the temp. is
raised to 85°, the reaction should be close to p_H 7.0.
G. G.

METALLURGICAL LITERATURE CLASSIFICATION

Filtration of the run-off from third-strike massecuite through the bone black ordinarily used for the filtration of final molasses. I. F. Zelikman and B. O. Lyubin. Nauk. Zapiski Tsukrovoi Prom. 10, No. 34, 45–55(1931). — Instead of filtering the final molasses through bone black, Z. and L. propose to filter the run-off for boiling the last strike. The expts. showed a considerable improvement due to the filtration of the run-off. The color of the final molasses obtained by this new method is much less than the color of ordinary final molasses. The period of boiling of last-strike massecuite is longer because of diln. of the run-off before filtration, but this can be compensated by leaving the final molasses undiluted. The bone black used for filtration of run-off can be further used for filtration of final molasses.

V. E. Barkow

A micromethod for the determination of reducing sugars
I. A. Obergard, B. O. Lyubin and A. Ya. Shuliatikova.
Arch. sci. biol. (U. S. S. R.) 38, 343–52 (in German 352–3)
(1935). The method is based on the modified Fehling
soln. of Haddon (C. A. 26, 941) and the use of methylene
blue devised by Lane and Eynon (C. A. 17, 1400; 19,
1684). Into a 25-cc. Erlenmeyer flask measure 2.00 cc
of Fehling soln. (I) (69.26 g. of recrystd. CuSO$_4$.5H$_2$O

made up to 1 l. with distd. H$_2$O, dild. 20 times before use)
and 2 cc. of a soln. (II) contg. 138.4 g. Rochelle salt,
80 g. NaOH and 12 g. K$_4$Fe(CN)$_6$ in a l. and dild. 1:10.
Then add the sugar soln. from a microburet in an amt.
just less than required to reduce the Cu, as detd. by a
preliminary titration. Heat to boiling for 30 sec., add 1
drop of 0.1% methylene blue and continue the titration
(1 drop in 2-3 sec.) with const. boiling until the end point
of sudden discoloration of the dye. The calcn. is explained
and a conversion table given.   W. A. Perlzweig

9 The influence of the culinary treatment of meat on its
mineral content. B. O. Lyubin. *Voprosy Pitaniya* 6,
No. 5, 9-16 (in German 15-16)(1937).--The ash content
of meat (1.15-1.17% wet wt.) decreased to 0.40% on boil-
ing for 2 hrs. with water. On frying for 20-30 min. the
ash content fell to 0.89-0.91%. The Ca content (14.06
mg./100 g. wet wt.) fell to 9.42 mg. 100 g. on boiling.
The Mg content (17.04 mg./100 g. wet wt.) fell to 9.7 mg.
on boiling, while the P content (157 mg./100 g. wet wt.)

fell to 110 mg. on boiling and to 127 mg. on frying. Fe
falls from 2.6 mg. 100 g. to 0.14 (0.83 mg. on boiling.
Practically no loss of Fe was observed on frying.
                                          S. A. Karताला

ASM-SLA   METALLURGICAL LITERATURE CLASSIFICATION

Methods for the analysis of carbohydrate mixtures.
B. O. Lyubin and S. L. Dikanskaya. *Voprosy Pitaniya* 7, No. 2, 53-63(in English 63)(1938).— Exact results on the analysis of sucrose-starch mixts. cannot be obtained by mild and intense hydrolysis of sep. samples since the fructose formed is converted into nonreducing substances by prolonged heating with acids. These substances react with I in the Willstatter detn. When fructose is heated for 1 and 1.5 hrs. with 3.0% HCl it is decomposed to the extents of 19.7 and 22.2%, resp.; for 1 and 1.5 hrs. with 3.5% HCl, to 21.3 and 27.6%, resp.; and for 3 hrs. with 2.5% and 3.0% HCl, to 41.6 and 53.8%, resp. When sucrose is heated for 1 and 1.5 hrs. with 3.0% HCl the fructose is decomposed to the extents of 19.7 and 27.3%, resp.; for 1 and 1.5 hrs. with 3.5% HCl, to 24.0 and 32.6%, resp.; and for 3 hrs. with 2.5 and 3.0% HCl,

to 42.8 and 47.5%, resp. For analysis the starch sample is hydrolyzed with 3.5% HCl by immersion of the flask in a boiling water bath for 1.5 hrs. rather than by heating on a steam bath. Then $0.9(b - 0.87a)$, where b is the percentage of reducing sugars after hydrolysis and a is the percentage of sucrose, gives the percentage of starch in the sample. For the analysis of mixts. of lactose and other carbohydrates in food materials the Willstatter method is satisfactory. If the food material contains dry or condensed milk a sep. estn. of lactose and invert sugar must be made.
                                        S. A. Karjala

METALLURGICAL LITERATURE CLASSIFICATION

PROCESSES AND PROPERTIES INDEX

Determination of the caloric value and of the chemical composition of food products with a calorimeter. B. O. Lyubin, Voprosy Pitaniya 7, No. 6, 105-12(1938).—KA?M. Referat. Zhur. 1939, No. 7, 70.—Protein cannot be detd. in the combustion in the calorimeter bomb of the N-contg. food products from the amt. of HNO_3 formed (as proposed by Gol'dberg, C. A. 30, 5361). The ratio of HNO_3 to total N varies between wide limits depending on the content of proteins. However, after chem. detn.

of proteins, it is possible to calc. the amt. of carbohydrates and fats from the combustion data. During the combustion process it is recommended to take only 4 temp. measurements instead of measuring the temp. every min.
W. R. Henn

METALLURGICAL LITERATURE CLASSIFICATION

The analysis of mixtures of maltose or lactose with monosaccharides. B. O. Lyubin and M. A. Lebedeva. *Voprosy Pitaniya* U.S.S.R. 7, No. 6, 113-21 (in French) (21)(1938). —A mixt. of glucose (I), sucrose (II), maltose (III), dextrin (IV) and fructose (V) can be analyzed by the use of 4 procedures. Barfoed's method (Z. anal. Chem. 12, 27(1873)) gives I. Bertrand's method gives I + 0.60 III. Herzfeld's method (cf. C. A. 21, 1550) gives I + 0.60 III + I (from II after inversion) + V. Hydrolysis for 1 hr. with 3.6% HCl gives I + I (from II after inversion) + I (from III after hydrolysis) + 0.760 I (from IV after hydrolysis). The concn. of each sugar can then be readily calcd. In the detn. of I by Barfoed's method a buffer soln. of Cu(OAc)$_2$ + NaOAc with a pH of 5.4 is used. Under the above conditions lactose behaves similarly to III and the method can be used for its detn. in similar mixts.

S. A. Karjala

Determination of citric and lactic acids   H. O. Lyubin and N. D. Bukhman   *Leprosy Patanrow* 8, No. 1, 21 (1959).   A review with 20 references.   S. A. Katzala

CH

The determination of reducing sugars by the cyanide method. B. O. Lyubin and N. D. Bukhman (Leprosy Putaxya 8, No. 2, 65-70 (1939).— The method of Jone-u Matin (Bull. soc. chim. biol. 9, 68 (1927) is the most satisfactory rapid method. For solns. contg. 0.5-2% sugars concns. of $K_4Fe(CN)_6$ and KOH of 46 g./l. are most satisfactory.

S. A. Karjala

Determination of milk in milk soups. B. O. Lyutsen and M. A. Lebedeva. Lab. Prakt. (U. S. S. R.) 16, No. 12, 21(1941).—The method is based on the presence of lactose in milk soup. Lactose is detd. iodometrically by the Willstätter and Schudel method (cf. C. A. 13, 406). Expts. indicated that practically no hydrolysis of sucrose or starch substances (rice, maccaroni, vermicelli) takes place. Therefore, the results of aldehyde sugar detns. are due entirely to the presence of lactose in the soup. Sep. the liquid part of a known vol. of milk soup by filtering through gauze. Dil. with H_2O 50 ml. of the liquid part in a 250-ml. flask to approx. 150 ml. and ppt. the proteins and fat with 5 ml. of 15% $K_4Fe(CN)_6$ and 5 ml. of 30% $Zn(AcO)_2$. Neutralize the mixt. with strong alkali in the presence of phenolphthalein and bring the liquid in the flask to the mark. Shake vigorously, let the ppt. settle and filter through an ordinary filter. Add 25 ml. of 0.1 N I soln. to 40 ml. of the filtrate in a flask with a ground stopper, add dropwise 37.5 ml. of 0.1 N NaOH, stopper the flask, let stand for 15 min., acidify the soln. with 10 ml. of 2 N HCl or H_2SO_4 and titrate the I liberated with 0.1 N $Na_2S_2O_3$ soln. to a light-yellow color, add 2-3 ml. of 1% starch soln. and 100 ml. of water and titrate with S_2O_3 soln. One ml. of 0.1 N I soln. used for the oxidation corresponds to 18.01 mg. of lactose. The content of lactose can be recalcd. to milk from the av. content of lactose in milk on the basis of exptl. data (4.8 g./100 ml.). The content of milk in g. is detd. by multiplying the no. of ml. by the d. of milk (av. 1.030).

W. R. Henn

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

CH

23

Crystalline glucose. N. V. Lebedev and B. G. Lyubin.
U.S.S.R. 67,145, Sept. 30, 1946. Cellulose is hydrolyzed
by HCl, the hydrolyzate neutralized with NaOH and
evapd. to crystn. and the product leached free of NaCl
with a small quantity of water.   M. Hoseh

LYUBIN, B. O.

Chemistry.

"Method of Determining the Crystallizing Capacity of Xylose Syrups,"

SO: Zhur. Prik. Khim,, 22, No. 2, 1949. Mbr., All-Union Sci. Research Inst. of the Hydrolysis and Sulfide-Alcohol Industry, -c1949-.

LYUBIN, B.O.

Sorbent from wood shavings. Patent U.S.S.R. 79,104, Dec.31, 1949.
(CA 47 no.19:10228 '53)

Decomposition of the binary compound of glucose and sodium chloride N. V. Lebedev and R. O. Lyubin. Zhur. Priklad. Khim. 23, 409 17(1950). Sepn. of glucose from NaCl on the basis of sharp difference in soly. of these substances at high temps. (80–85°) does not yield pos. results because at these temps. the double compd. (C₆H₁₂O₆)₂·NaCl dissolves, without decompn., as a chem. compd. Treatment of the double compd. with water at temps. close to 15° results in its decompn. into glucose, the bulk of which remains in the solid phase, and NaCl, the greater part of which goes into soln. In this manner, it is possible to ext. cryst. glucose with a small admixt. of NaCl.   B. Z. Kamich

Optimal conditions for obtaining crystalline glucose. II. N. V. Lebedev, B. O. Lyubin, and D. M. Khai (J. appl. Chem. U.S.S.R., 1950, 23, 739—746; cf. B., 1951, II, 620).—The solubility of $(C_6H_{12}O_6)_2$,NaCl,H_2O (I) obtained from chemically-pure glucose and NaCl has been investigated between −10° and 40°. Up to 25° the complex dissolves with decomposition giving a solution with high NaCl content and a ppt. with high glucose content. Above 30°, I dissolves like a binary compound without decomposition. The saturated solution contains at −10°, −2·5°, +2·5°, 5°, 10°, 15°, 20°, 25°, 30°, 35°, and 40° the following wt.-% of glucose: 16·1, 20·2, 22·4, 26·8, 29·6, 35·6, 44·1, 49·3, 53·6, 54·9, and 57·0% and NaCl: 14·6, 16·0, 14·2, 12·7, 12·6, 11·6, 10·3, 9·3, 8·9, and 6·7%, while the solid phase contains glucose: 49·8, —, 66·0, 62·6, 73·2, 64·9, 77·1, 74·6, 74·6, 70·7, and 75·7% and NaCl : 1·57, —, 5·1, 5·5, 5·4, 5·4, 2·6, 10·1, 12·6, 12·3, and 12·9%. In a separate series of experiments, finely-powdered I was decomposed by H_2O at different temp. and pptd. glucose was separated from the filtrate after 1 hr. after the thickening of the solution without waiting for the establishment of full equilibrium. The best temp. for the decomp. of I is 5°; 15° is the best easily obtainable temp. for this process. It is not advisable to reach the equilibrium but on the contrary the filtration should be carried out after the thickening of the solution. Under these conditions the solution at 5° contains about 16·2% of glucose instead of 26·8% in saturated solution, while the NaCl % is roughly equal in both cases. Using different proportions of H_2O : I the yield of cryst. glucose is as follows : 55·6 at 1 : 1, 62·7 at 1 : 1·25, 64·3 at 1 : 1·5, 76·5 at 1 : 1·75, and 78% at 1 : 2 ratio. It is advisable to use finely-powdered I for its decomposition for kinetic reasons, for better yield, and for higher purity of glucose.

J. B. J. ZABA.

CA

The optimum conditions for preparing crystalline glucose
N. V. Trikolev, B. O. Lyubno, and D. M. Khan. J. Applied
Chem. U.S.S.R. 23, 781 (1950) (Eng. translation).
The soly. of $C_6H_{12}O_6 \cdot NaCl \cdot I$ in H_2O at various temps.
was detd. The binary compd. was prepd. according to a
method previously described (J. Applied Chem. U.S.S.R.
23, 109 1950). The compd. analysis in % was $C_6H_{12}O_6$
82.65, (C1 18.2), H_2O 4.07. The soly. tests were run at a
temp. ranging from 10 to 40°. The data show that
when I is dissolved at a temp. below 25° it is decompd. into
glucose and NaCl. At 30° and higher I dissolves like a
single compd. without decompn. The optimum temp. for
recovery of glucose from I was 15°, the highest glucose
yield was at 5°. The optimum ratio for $I \cdot H_2O$ for the best
recovery of glucose was 1:1.5. It is suggested that grinding
the crystals of I to a powder before decompg. with H_2O to
remove cryst. glucose is advisable. Curves illustrate the
soly. relations of glucose and NaCl.   R. J. Allgeier

c A

28

Effect of some salts and sugars on crystallization of xylose sirups M. I. Nakhmanovich, B. O. Lyuhin, and D. M. Khal. Zhur. Priklad Khim. J. Applied Chem. 23, 1331-5 (1950). Crystn. of xylose sirup is greatly accelerated in addn. of 0.5-2.6% Ca(OAc)₂. the sirup acquires a brown color, which becomes more intense with higher contents of the salt. Ca formate causes a similar effect, but Ca(NO₃)₂ hinders the initiation of crystn., but once started the proc-ess is more rapid than controls. MgSO₄ shows no ef-fect. Presence of other sugars, and hemicellulose retards crystn.-arabinose is especially potent. Nonsugars cause a salting-out effect and hasten the crystn. in the beginning but retard it in later stages. G. M. Kosolapoff

U S S R

The water regeneration of anionites. B. O. Lyubin and L. I. Gordon (All-Union Sci. Research Inst. Hydrolytic and Alcoholic-Sulfite Ind.). *J. Appl. Chem. U.S.S.R.* 26, 345-9(1953)(Engl. translation); *Zhur. Priklad. Khim.* 26, 382-7(1953).—The regeneration is described of anionites of the TM and M brands (compn. not given) with water after their absorption of H_2SO_4 and HCl. The absorption was made from solns. of the pure acids and from solns. of hydrolyzed wood pulp and agricultural waste. This method may serve to decrease consumption of alkali usually used for the regeneration of anionites.   J. Rovtar Leach

LYUBIN, B.O.

Rapid determination of reducing sugars in industrial control. B. O. Lyubin. J. Appl. Chem. U.S.S.R. 26, 517–19(1953)(Engr. translation).—See C.A. 47, 10411d.

H. L. H.

LYUBIN, B. O.

Journal of the Science
of Food and Agriculture
March 1954
Foods

①

Rapid determination of reducing sugars for factory control. B. O.
Lyubin (Zhurn. Priklad. Khim., 1953, 26, 556—558; Sug. Ind.
Abstr., 1953, 15, 167).—A mixture of 5 mL of aq. 1·5% $CuSO_4 \cdot 5H_2O$–
0·005% methylene-blue, 5 mL of aq. 5% Rochelle salt–7·5%
$NaOH$–0·4% $K_4Fe(CN)_6$, and 5 ml. of the sugar solution (containing
≯0·15% of reducing substances) is heated in a flask on an asbestos-
shielded electric plate (boiling is unnecessary). The excess of
alkaline Cu solution is back-titrated with previously standardised
aq. 0·1% glucose until the colour vanishes.

P. S. Arup

THEORY AND PRACTICE OF THE APPLICATION OF ION-

EXCHANGE MATERIALS

Teoriya i Praktika Primeniya
Ionoobmennykh Materialov, Moscow,
1955, pp 1-169.

K. V. Chmutov

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LYUBIN B. O.

CHINA / Chemical Technology. Chemical Products and Their   J-12
    Application - Carbohydrates and refinement

Abs Jour   : Referat Zhur - Khimiya, No 2, 1958, 6130

Author   : Lyubin B. O.

Inst   : Not given

Title   : Rapid Method for Determining Reducing Sugars in Production
              Control

Orig Pub   : Khuasyue shitsz., 1955, No 7, 344

Abstract   : A translation. See RZhKhim, 1953, 3535

Card 1/1

LYUBIN, B.O.

LEBEDEV, N.V., kand.tekhn.nauk; LYUBIN, B.O., kand.khim.nauk

Edible crystalline glucose from wood. Khim.nauka i prom. 2 no.4:437-443
'57.   (MIRA 10:11)
     (Glucose)   (Wood--Chemistry)   (Hydrolysis)

LEBEDEV, N.V.; LYUBIN, B.O.; BANNIKOVA, A.A.

Yield of crystallized glucose in the decomposition of a
binary compound of glucose and sodium chloride. Gidroliz. i
lesokhim.prom. 11 no.7:3-5 '58.   (MIRA 11:11)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut gidroliznoy i
sul'fitnospirtovoy promyshlennosti.
              (Glucose)   (Crystallization)

LYUBIN, O. Sh

5007. OPERATION OF FURNACES WITH ROCKING FIRE-BARS AND WITHIN INCLINED, RECIPROCATING GRATE UNDER SMALL BOILERS. Oganov, P. I. and Lyubin, B. Sh. (Za Ekon. Topliva (Fuel. Econ.), 1950, (1), 4-8).

Illustrated descriptions and test figures for 3 grates with areas ranging between 2.7 and 5.1 sq. m., installed in place of ordinary hand-fired grates and burning Moscow region (brown) coal. Grate (1) had hand-actuated rocking fire-bars arranged with their major axes parallel with the front of the furnace and having interlocking wavy edges. Grate (2) was similar but its fire-bars were rectangular perforated plates with their major axes perpendicular to the front. Grate (2) was preferred to grate (1) owing to greater ease of cleaning the bars and better distribution of air from below the grate through the perforations. Grate (3) consisted of 11 steps running down from tthe front to the back of the grate. Alternate steps were fixed to a stationary frame and to a power-actuated reciporating frame. Fuel was dropped from a feeding device on to the top step. Thickness

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

bed was regulated by a vertically adjustable shutter above it at the front and a brick sill at the back. Grate (3) needed more installation work than (1) and (2), including raising the boiler in the case described, and called for more accurately sized coal. Large lumps traversed the length of the grate before combustion was complete. (L).

1677. MECHANIZING AND INCREASING THE EFFICIENCY OF FURNACE INSTALLATIONS OF SMALL CAPACITY BOILER PLANTS. Organov, P.I. and Lyubin, B.Sh. (Moscow: Oborongiz, 1956; 156pp.; abstr. in Teploenergetika (Heat Pwr Engng, Moscow), Mar. 1957, £h). The possibility is examined of mechanizing and increasing the output and economy of small boilers burning coal and brown coal.

LYUBIN, B.Sh., inzh.; SHAPIRO, I.F., inzh.

Experience in the adjustment of modernized Shukhov-Berlin boilers.
Prom. energ. 20 no.5:26-29 My '65.   (MIRA 18:7)

OGANOV, P.I., inzh.; LYUBIN, B.Sh., inzh.; KATSENELENBOGEN, B.V., inzh.;
KRUZHKOV, V.N., inzh.

Experience in the modernization of Shukhov-type boilers operating
on liquid fuel. Prom. energ, 17 no.3:18-23 Mr '62. (MIRA 15:2)
(Boilers)

OGANOV, P.I., inzh.; LYUBIN, B.Sh., inzh.; KATSENELENBOGEN, B.V., inzh.;
KRUSHKOV, V.N., inzh.

Modernization of Shukhov-Berlin system boilers operating on liquid
and gaseous fuels. Prom. energ. 17 no.8:13-20 Ag '62.   (MIRA 16:4)
                    (Boilers)

LYUBIN, B.Z.

      Perforating ulcer of the small intestine combined with inflammation
of Meckel's diverticulum. Zdrav. Bel. 6 no.12:53-54 D '60.
                                        (MIRA 14:1)
1. Iz khirurgicheskogo otdeleniya (zaveduyushchiy otdeleniyem B.Z.
Lyubin) Uvarovicheskoy rayonnoy bol'nitsy.
        (PEPTIC ULCER)   (ILEUM—DISEASES)

LYUBIN, B.Z.

Perforation of the ileum by a fish bone. Zdrav. Bel. 7 no.6:60
Je '61.   (MIRA 15:2)

1. Iz khirurgicheskogo otdeleniya (zaveduyushchiy otdeleniyem
B.Z.Lyubin) Uvarovicheskoy rayonnoy bol'nitsy (glavnyy vrach M.F.
Dubitskaya).
                    (ILEUM—FOREIGN BODIES)

KOTLYARENKO, B.M.; KASIM, I.M.; LYUBIN, B.Z.

Morphological properties of goiter-induced changes in surgically
removed thyroid glands as one of the objective indices of the
severity of endemic goiter in Gomel' Province. Probl. endok. i
gorm. 10 no.1:38-40 Ja-F '64.

(MIRA 17:10)

1. Gomel'skiy oblastnoy protivozobnyy dispanser, 1-ya Sovetskaya
oblastnaya bol'nitsa i 4-ya Sovetskaya gorodskaya bol'nitsa Go-
mel'skoy oblasti.

LYUBIN, F.A. (Dnepropetrovsk)

On urgent and emergency medical aid for the urban population.
Sov. zdrav. 19 no.9:23-25 '60.   (MIRA 13:11)
    (DNEPRODZERZHINSK—FIRST AID IN ILLNESS AND INJURY)

26 2145
24 4300

39222
S/207/62/000/003/001 016
1028/1228

AUTHOR: Lyubin, L. Ya. and Povitzkiy, A. S. (Moscow)

TITLE: Motion of gas bubles caused by pressure fluctuations in the liquid in the absence of mass forces

PERIODICAL: Zhurnal prikladnoy mekhaniki i tekhnicheskoy fiziki, no. 3, 1962, 3-9

TEXT: The paper extends the Bjerkness-Zhukovskiy analysis of the force of interaction between fluctuating spheres to the case of motion of gas bubbles caused by pressure fluctuations. The translational motion of two gas bubbles, suspended in a liquid occupying a spherical volume on whose external surface acts a fluctuating pressure $p(t)$, is examined. The Lagrangian equations of motion are integrated for the case $p(t) = p_0 \cdot p \sin mt$ under some simplifying assumptions and neglecting the mass forces. The results obtained are extended to the case of a liquid contained in a vessel of arbitrary shape, and also to the case of an unique bubble placed near the vessel wall. There is 1 figure.

SUBMITTED: January 30, 1962

Card 1/1

POVITSKIY, A.S.; LYUBIN, L.Ya.

Emptying and filling vessels under weightlessness conditions.
Isk.sput.Zem. no.15:22-37 '63.   (MIRA 16:4)
            (Weightlessness)   (Hydrodynamics)

L 3924-66   FSS-2/EWT(1)/EWP(m)/FS(v)-3/EWA(d)/FCS(k)/EWA(1)   DD/RD

ACC NR: AP5026052   UR/0293/65/003/005/0718/0729

532.529.6

AUTHOR: Povitskiy, A. S.; Lyubin, L. Ya.

TITLE: Gas flow into a liquid under weightlessness conditions

SOURCE: Kosmicheskiye issledovaniya, v. 3, no. 5, 1965, 718-729

TOPIC TAGS: hydrodynamics, gas flow, axial flow, weightlessness

ABSTRACT: The effect of near-zero and zero gravity on the process of bubble formation (bubbling process) in a flow of gas injected into a liquid through a tube is considered. Flows of gas into stationary and moving liquids are analyzed for various values of Bond and Weber numbers under conditions of weightlessness. Conditions are established under which the bubbles may break away from the tube. The main parameter characterizing the process, the ratio D/d where D is the diameter of a bubble at the time of breaking away and d the diameter of the tube, is expressed in terms of the Bond number. The analysis shows that the absence of mass forces and even the unfavorable direction of g forces can be compensated by the motion of the fluid under specific conditions. The interaction between a forming bubble and an already detached bubble, that is, between pulsating and oscillating bubbles in a liquid is evaluated by using Zhukovskiy's method for solving the Bjerknes problem. Orig. art. has: 6 figures and 25 formulas.   [AB]

Card   1/2

L 3924-66

ACC NR: AP5026052

ASSOCIATION: none

SUBMITTED: 24Oct64   ENCL: 00   SUB CODE: ME

NO REF SOV: 009   OTHER: 005   ATD PRESS 4119

Card 2/2

L 21183-66   EWT(1) GW

ACC NR: AP6009052 (A)   SOURCE CODE: UR/0207/66/000/001/0083/0092

AUTHOR: Lyubin, L. Ya. (Moscow); Povitskiy, A. S. (Moscow)   26
                                                              B

ORG: none

TITLE: Oblique impact of a solid body on soil

SOURCE: Zhurnal prikladnoy mekhaniki i tekhnicheskoy fiziki, no. 1,
1966, 83-92

TOPIC TAGS: impact, soil mechanics, soil impact deformation

ABSTRACT: The oblique impact on a soil surface of a solid body having
a parabolic (plane problem) or paraboloidal (axisymmetric body) fore-
body is reviewed. The soil is assumed capable of significant
density change during compaction and is an elastoplastic
medium in which uniaxial deformation is governed by the piecewise-
linear law. In the first case considered, it is assumed that before
impact the body does not rotate, and during penetration angular
acceleration is negligibly small, since the corresponding inertia
moment is significantly great. Outlined are five stages into which
soil deformation can be divided when the initial-velocity component
normal to the soil surface is sufficiently large. Various stages

Card 1/2

L 21183-66

ACC NR: AP6009052

are discussed, and formulas are derived to described them and their formation in terms of a plane problem. Expressions for an axisymmetric body are derived analogously. Orig. art. has: 4 figures and 40 formulas.

[LB]

SUB CODE: 08, 20/ SUBM DATE: 06Jul65/ ORIG REF: 008/ ATD PRESS:

Card 2/2

LYUBIN, S.

LYUBIN, S.

We finish unloading cars ahead of schedule.   Muk.-elev.prom.20
no.11:27 N '54.   (MIRA 8:3)

1. Leningradskiy mel'nichnyy kombinat imeni S.M.Kirova.
        (Loading and unloading)

KOZIN, A.I.; TRUNOV, A.F.; SOVENKO, P.S.; YEGOROVA, Ye.I.; AKATNOV,
I.N.; KOLUSHEV, V.I.; PANASENKO, L.I.; KATS, A.R.; AKSENOV,
T.Ye.; LYUBIN, S.G.; SOSHER, S.Ye.; RYABININ, M.M.; MEL'NIKOV,
P.N.; KLYUSHINA, L.T.; KUTUZOVA, M.G.; GOLOVNYA, V.S.;
IVANOV, A.F.; SINEV, I.I.

I.A. Danilov; obituary. Muk.-elev. prom. 26 no. 12:26 D '60.
(MIRA 13:12)
(Danilov, Ivan Aleksandrovich, d. 1960)

L VU/3 iN , l *η,*

CIRCUITS AND CIRCUIT ELEMENTS

"Certain Types of RC Sinusoidal Generators Employing Transistors", by
V.M. Lyubin, Elektrosvyaz', No 8, August 1957, pp 20-25.

Several transistorized RC oscillator circuits for sinusoidal volta-
ges are cons.dered, and methods are given for their approximate calcu-
lation. A comparison is made of the calculated and measured values of
the generation oscillation frequency. Problems of interchangeability
of transistors in oscillators are discussed.

Card 1/1   - 15 -

SOV/108-13-2-6/15

AUTHOR: Lyubin, V. M. , Regular Member of the Society (VMOR E)

TITLE: **RC-tuned Transistor Phase-shift Oscillators**   (Poluprovod-
             nikovyye RC-Generatory s povorotom fazy)

PERIODICAL: Radiotekhnika, 1958, Vol. 13, Nr 2, pp. 44 - 50 (USSR)
             Received: April 25, 1958

ABSTRACT: Here different schemes of semiconductor-RC-generators with
             phase reversal are investigated (povorotom fazy). Formulae
             for the freqnency of generation and the criterion for the
             amplification are derived. The curves showing the dependence
             of the relation of the voltage amplification factor on the
             amplifier - K_u to the amplification criterion K_o of the
             resistance R in the CR-circle of a generator with a semicon-
             ductor are given. All the curves have a peak more or less di-
             stinct. The relation K_u/K_o has its maximum value at average
             values of R. Moreover it can be seem from the curves that
             the condition for the generation can be guaranteed with any
             semiconductor apparatus, but not with any value of R. This
Card 1/3   ought to be the cause for the fact that the experiments in

RC-timed Transistor Phase-shift Oscillators

the construction of a generator of the type investigated here
with a semiconductor triode of the former production did not
succeed. Equation (10) for the voltage transfer factor is de-
rived and it is shown that in the phase opposition with an
RC-circuit, that is in the case that the imaginary part of equa-
tion (10) becomes equal to zero, a generation will take place.
From this the factor μ and then the formula (11) for the
generation frequency f_0 and the formula (12) for the amplifi-
cation criterion K_0 can be derived. In the course of the in-
vestigation the following regularities were observed:
1) The maximum generation frequency was remarkably lower than
the cutoff frequency of the applied triodes. 2) When using
RC-circuit a generation with higher frequencies than under
apllication of RC-circuit is obtained. 3) An increase of the
amplification factor of the amplifier in the generator (e.g.
applying the two-cascade amplifier) always offered the possi-
bility to penetrate into the range of higher frequencies. Thus
the upper limit of the range of the working frequencies for
the semiconductor generator, as distinguished from the valve-
-RC-oscillators, must be determined rather by the amplifica-
tion cascades than by the type of the RC-filter applied. These
Card 2/3   statements want an additional checking by way of computations

SOV/108-13-2-6/15

RC-tuned Transistor Phase-shift Oscillators

and experiments though. Finally it is referred to the fact that when taking the particularity of the triodes in semiconductor generators of the sonic and infrasonic range into consideration it is practical to evaluate the generators from the viewpoint of the stability of their parameters under modifications of working conditions. For this purpose the factor (coefficient) of the potential stability can be introduced. This factor shows the potential possibility of stabilizing the generator parameters. With such a coefficient it is convenient to understand the relation K_u to K_o. There are 7 figures, 1 table, and 11 references, 7 of which are Soviet.

SUBMITTED: July 8, 1957

Card 3/3

LYUBIN, V. M., Cand Tech Sci (diss) -- "The photoelectric properties of layers

of chalcogenides of antimony and arsenic and their use in television trans-

mitting tubes". Leningrad, 1959. 11 pp (Acad Sci USSR, Leningrad Phys-Tech

Inst, State Committee of the Council of Ministers USSR on Radio Electronics),

250 copies (KL, No 11, 1960, 133)

KOLOMIYETS, B.T.; LYUBIN, V.M.

Properties and structure of ternary semiconducting systems. Part 6:
Electric and photoelectric properties of layers of the $Sb_2S_3-Bi_2S_3$
system. Fiz.tver.tela 1 no.5:740-747 My '59.   (MIRA 12:4)
          (Photoelectricity)
          (Semiconductors—Electric properties)

KOLOMIYETS, B.T.; LYUBIN, V.M.; TARKHIN, D.V.

Conductivity and photoconductivity in antimony triselenide films.
Fiz. tver. tela 1 no.6:899-902 Je '59.   (MIRA 12:10)
           (Antimony selenide --Electric properties)

SOV/120-59-4-27/50

AUTHOR: Lyubin, V. M.

TITLE: Measurement of the Resistance and Surface Potential in Semiconductor Layers

PERIODICAL: Pribory i tekhnika eksperimenta, 1959, Nr 4, pp 118-122 (USSR)

ABSTRACT: The resistance R of a high-resistivity semiconductor layer deposited on a conducting surface and irradiated with an electron beam is given by

$$R = |U_s - U_b| / I \quad , \qquad (1)$$

where U_s is the surface potential of a layer irradiated with electrons, U_b is the potential of the conducting substrate (base) and I is the current flowing through the layer. It follows that measurement of R involves the determination of the surface potential U_s. The present paper describes a method which requires two electron beams to measure the surface potential of charged semiconductor

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SOV/120-59-4-27/50

Measurement of the Resistance and Surface Potential in Semiconductor
Layers

layers and their transverse resistance for a wide range of
U_s (both $U_s > U_b$ and $U_s < U_b$) . This method can be
also used to study the rate of rise and fall of U_s and
its distribution across the layer surface. The basis of
the method is explained by Fig 1. A semiconductor layer
Π deposited on a conducting base, which is called the
signal plate C , is subjected to bombardment with two
overlapping electron beams produced by two separate electron
guns. Secondary electrons knocked out of the semiconductor
layer are gathered by a collector K . One electron beam
ЭП1 is triggered by short pulses fed to the modulator of
its electron gun. The duration and repetition frequency of
these pulses are selected in such a way as to minimise
charging the semiconductor surface. The other electron beam
ЭП2 is used to charge the semiconductor surface. The
electron beam ЭП1 , acting alone, produces current pulses
in the signal-plate circuit, whose polarity and amplitude
depend on the voltage U_{sp} applied to the signal plate,
the electron beam current I_p and the collector potential

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SOV/120-59-4-27/50

Measurement of the Resistance and Surface Potential in Semiconductor Layers

U_c . Dependence of U_p, the amplitude of pulses in the signal-plate circuit, on U_{sp} is shown in Fig 2 for I = const and U_c = const . For any given value of U_{sp} (e.g. U_{sp} = U) we can find the corresponding value of U_p from the curve of Fig 2. After charging the semiconductor layer by means of the electron beam ЭЛ2 the value of U_p rises to U_p'' . From Fig 2 we can read off the value of U_{sp} (let us call it U") corresponding to the value of U_p'' . Resistance is then calculated, using Eq (1), where I is the current flowing through the instrument G in Fig 1. This procedure can be repeated for a wide range of magnitudes and polarities of the voltage applied to the semiconductor layers. This method can be used also to

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Measurement of the Resistance and Surface Potential in Semiconductor Layers

study the kinetics of rise and fall of U_s . The instrument used is shown schematically in Fig 3. A bulb 1 contains a conducting plate 2 with a semiconductor layer on it. The conducting plate is in the form of a semi-transparent film (a thin layer of Pt or SnO_2) which made it possible to illuminate the semiconductor sample through a glass window 3 (useful in photo-sensitivity studies). Vacuum in the bulb was held at (1-3) x 10^{-6} mm Hg. The methods of triggering both electronic guns are discussed in detail. The technique employed in amplification, measurement and display of the pulses in the signal-plate circuit is described. The method was used to measure the resistances and photo-sensitivities of Sb_2S_3, As_2Se_3, $AsSbS_3$ and amorphous selenium layers. For Sb_2S_3 and amorphous selenium layers the results agreed well with the published data (Refs 2, 8, 10, 13). For As_2Se_3 and $AsSbS_3$ layers a sharp fall of the resistance was observed on increase of the voltage across the layer. Fig 4 shows the experimental curve

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Measurement of the Resistance and Surface Potential in Semiconductor Layers

$U_p = f(U_{sp})$ for a layer of Sb_2S_3. Acknowledgment is made to L. N. Dobretsov and A. A. Mostovskiy for their advice. There are 4 figures and 13 references, 7 of which are Soviet, 5 English and 1 German.

SUBMITTED: July 18, 1958.

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SOV/120-59-4-29/50

AUTHORS: Lyubin, V. M., Makedonskiy, V. L.

TITLE: Measurement of the Amplitude of the Pulses Having a Low Repetition

PERIODICAL: Pribory i tekhnika eksperimenta, 1959, Nr 4, pp 125-126 (USSR)

ABSTRACT: The instrument was designed for the investigation of the secondary emission, photo-conductivity and other electric parameters of dielectrics and semiconductors having high resistivity. The circuit of the device is shown in Fig 1. The principal of the operation of the circuit is based on a rapid charging of the storage condenser C_1 which is capable of preserving the charge over a comparatively long time interval; the condenser is then rapidly discharged immediately before the appearance of the next pulse. The pulses to be measured are first amplified in a wideband amplifier (not shown in Fig 1) and applied to the input tube of the circuit in Fig 1, which acts as a phase inverter. The switch K_1 applies positive pulses to the cathode follower which feeds

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Measurement of the Amplitude of the Pulses Having a Low Repetition

the storage stage. The latter consists of a double triode and the capacitor C_1 as its cathode load. This arrangement permits a rapid charging of C_1 , the charging current being proportional to the amplitude of the pulse. During the appearance of the next pulse, C_1 is rapidly discharged by the thyratron (Fig 1) which is triggered by a narrow pulse corresponding to the leading edge of the measured pulse. The trigger pulses can be formed either by a special circuit or by means of a simple RC differentiating network. The output of the storage capacitor is fed to a cathode-follower bridge circuit where the pulse amplitude is measured by a voltmeter. The device gives a linear input-output voltage characteristic for frequencies as low as

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SOV/120-59-4-29/50

Measurement of the Amplitude of the Pulses Having a Low Repetition

1.5 c.p.s. and pulse durations down to 0.5 $\mu s \partial$. This is illustrated in Fig 2. The error of the measurement does not exceed 2-3%. The authors express their gratitude to S. S. Andzhan for valuable advice. There are 2 figures, and 5 Soviet references.

SUBMITTED: July 18, 1958.

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~~24 (4)~~

AUTHORS: Kolomiyets, B. T., Lyubin, V. M.   67258
SOV/20-129-4-20/68

TITLE: Some Specific Features of the Photoelectric Effect in Amorphous
Layers of Arsenic Triselenide

PERIODICAL: Doklady Akademii nauk SSSR, 1959, Vol 129, Nr 4, pp 789 - 792
(USSR)

ABSTRACT: The properties of arsenic chalcogenides, i.e. the analogs of
antimony have hitherto not been investigated. Publications have
so far been giving only very scarce results of investigations
of the crystalline layers of As_2Se_3. The present article de-
scribes the first results obtained by investigating the sub-
stances of this group, which were found on arsenic triselenide
layers. The As_2Se_3 was synthetized from elements having the fol-
lowing purity degrees: Se 99.998%, As 99.99...%. The layer was
produced by vaporizing in a vacuum at a pressure of $p = 10^{-5}$
to 10^{-6} mm Hg onto polished glass bases (which have previously
partly been coated with a semitransparent conductive film of
Pt, Au, Al, or SnO_2). The As_2Se_3 layers had a thickness of

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Some Specific Features of the Photoelectric Effect in   SOV/20-129-4-20/68
Amorphous Layers of Arsenic Triselenide

0.5 to 2 μ. Onto this layer, semitransparent electrodes made from Al, Au, or Ag were applied in vacuum, so that the properties could be investigated "transversely" to the layer. The layers As_2Se_3 have an amorphous structure. The dark carriers were holes. In the course of longitudinal measurements $\varrho_d = 10^{11} - 10^{12}$ Ohm.cm was found for the specific dark resistance, and in measurements transversal to the layer $\varrho_d = 10^{12} - 10^{13}$ Ohm.cm was found. The layers had a high photoconductivity which surpassed that of the Sb_2S_3 layers. In the measurements carried out along the layers no photoelectromotive force existed. However, in transversal measurements a photoelectromotive force was always observed, and it attained a value of $\varepsilon = 0.4$ v. The photoelectric effect in the As_2Se_3 layers had low viscosity. Besides, several interesting features of the photoelectric effect were observed in the As_2Se_3 layers, as e.g. a temperature dependence of the photoelectric current and

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Some Specific Features of the Photoelectric Effect in   SOV/20-129-4-20/68
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a spectral distribution of photoelectric sensitivity. A diagram
shows the dependence of the photoconductivity logarithm and of
the temperature conductivity upon the reciprocal temperature in
longitudinal measurements. The dark conductivity and, at low
temperatures, also photoconductivity increase exponentially with
increasing temperature. At higher temperature photoconductivity
decreases with increasing temperature. This may be due to the
variation of the recombination conditions (increase of the re-
combination rate) of the current carriers. The exponential in-
crease at low temperatures is, according to the authors' opinion,
due to the "adhesion" of light-induced current carriers. The
barrier mechanism and the exciton mechanism are, as the authors
believe, only little probable. In transversal measurements the
course of the spectral distribution curve of the photoelectric
effect depends to a considerable extent on the polarity of the
applied voltage. In the case of some samples the sign of the
photoelectromotive force also depended on the wave length. The
authors also produced samples with a common lower electrode
(covered with Al) and with different upper electrodes (Al and Au).
Card 3/4   In the case of illumination coming from the direction of the

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Some Specific Features of the Photoelectric Effect in   SCV/20-129-...-2 /69
Amorphous Layers of Arsenic Triselenide

lower electrodes, spectral characteristics of the type I were
obtained by measurements carried out on the electrodes .1 - Al,
and in the case of measurements carried out on the electrodes
Al - Au characteristics of the type II resulted. The authors
endeavor to explain the totality of the phenomena observed by
the so-called photodiode effect. There are 3 figures and
15 references, 11 of which are Soviet.

ASSOCIATION: Fiziko-tekhnicheskiy institut Akademii nauk SSSR (Institute of
                Physics and Technology of the Academy of Sciences, USSR)

PRESENTED: July 20, 1959, by A. F. Ioffe, Academician

SUBMITTED: July 15, 1959

Card 4/4

S/181/60/002/01/12/035
B008/B011

AUTHORS: Kolomiyets, B. T., Lyubin, V. M.

TITLE: On the Mechanism of Photoconductivity in Amorphous
                Chalcogenide Layers

PERIODICAL: Fizika tverdogo tela, 1960, Vol. 2, No. 1, pp. 52 - 54

TEXT: The authors investigated the dependences of the photocurrent on
exposure at increased temperatures and the temperature course of the
photocurrent in a wide exposure range on a semiconductor layer. Amor-
phous Sb_2S_3, and in part, As_2Se_3 layers were used for the purpose.
The results obtained can be evidently extended also to other amorphous
photoconductive layers, above all, other antimony and arsenic chalco-
genides. The methods applied were the same as those of Refs. 1-3.
Fig. 1 illustrates typical lux-ampere characteristics of amorphous
layers at different temperatures. The presence of two gradients at room
temperature was explained by the assumption of two recombination mecha-
nisms which occur in CdS samples. Fig. 2 shows typical dependences of

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On the Mechanism of Photoconductivity in   S/181/60/002/01/12/035
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the photocurrent logarithm on the inversion temperature, that were taken
at different exposure values on the photoconductor. Experimental data
indicate that photocurrents in amorphous photoconductive layers show
two opposite tendencies with a rise in temperature. The exponential tem-
perature dependence of the effective carrier mobility is dealt with in
Refs. 9 and 10. In amorphous photoconductive layers the second mecha-
nism described in Ref. 10 seems to prevail. This is the steplike mecha-
nism which is characterized by a discontinuous motion of the carriers,
due to their "adhesion". The investigations carried out point to a com-
plicated mechanism of the internal photoeffect. An important conclusion
reached here is that the investigation of the temperature course of the
photocurrent can serve as a simple method of determining the position of
the adhesion levels in amorphous photoconductive layers. V.K. Kocherov,
graduate student of LGU participated in the work. A.F. Ioffe is men-
tioned (Ref. 10). There are 2 figures and 10 references: 4 Soviet.

ASSOCIATION: Leningradskiy fiziko-tekhnicheskiy institut AN SSSR
              (Leningrad Institute of Physics and Technology AS USSR)

SUBMITTED: August 31, 1959

Card 2/2

89023

S/020/60/135/004/018/037
B019/B077

AUTHORS: Lyubin, V. M., and Fedorova, G. A.

TITLE: The Problem of High-voltage Photo-electromotive Forces in Thin Semiconducting Layers

PERIODICAL: Doklady Akademii nauk SSSR, 1960, Vol. 135, No. 4, pp. 833-836

TEXT: The authors present the results of a study of high-voltage photo-emf in layers of CdTe and of some antimony and bismuth halides. The initial material was cadmium telluride which is available as a luminescent powder under the trade-mark "chistyy" ("pure"), or is obtained by melting the necessary portions of Cd and Te. Evaporation on glass or mica was done in a graphite container. In all layers produced by this method, a photo-emf of up to 80 - 100 v/cm was established, and some layers showed values of up to 150 - 180 v/cm at room temperature. The magnitude of the photo-emf was a function of the layer thickness, the temperature of the base, and the manufacturing process. A layer thickness of $d \simeq 1.5\mu$ and a base temperature of about 300°C were found to be most favorable; the resistivity of the layer was $10^7 - 10^8$ ohm.cm. These investigations showed that CdTe can be

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The Problem of High-voltage Photo-electro-   S/020/60/135/004/018/037
motive Forces in Thin Semiconducting Layers   BC19/BO77

used in television devices. It was found that the sign of the photo-emf
can be different even when using equal manufacturing methods. No change
of sign was established when the interval between container and base was
kept small during the production. The origin of a high-voltage photo-emf
is explained by a photo current which might pass through the layer during
evaporation and separate the ionized impurities. Tests did not confirm this
theory. In different spectral ranges different signs of photo-emf were
found; and test results indicated the existence of sublayers which com-
plicate the explanation of high-voltage photo-emf. Practically the same
results were obtained for the photo-emf of binary and ternary layers of
antimony and bismuth produced in the same way as the CdTe layers. There
are 2 figures, 2 tables, and 8 references: 4 Soviet and 4 US.

PRESENTED: June 20, 1960, by A. F. Ioffe, Academician

SUBMITTED: June 10, 1960

Card 2/2

9,4160

34233
S/181/62/004/002/016,0
B102/B138

AUTHORS   Kolomiyets, B. T., and Lyubin, V. M.

TITLE   Electrical and photoelectrical properties of antimony
             selenide layers

PERIODICAL   Fizika tverdogo tela. v. 4, no. 2, 1962, 401-41

TEXT As_2Se_3 layers 0 4 - 5μ thick and of 99.998 and 99.9%, purity were
studied   They are of great interest for television-tube manu.
Ag, Al, Au, Pt and SnO_2 were used as electrode materials   Conductivity
photoconductivity. light absorption and polarization effects were studied
with the usual methods and by the electron contact   Electron diffraction
pictures taken by V. A. Dorin showed that the As_2Se_3 layers obtained by
condensation in vacuo were amorphous   Hole-type conductivity was
predominant   Dark resistivity varied between 10^{11} and 10^{13} ohm cm   At
fields $E < - = 10^4$ v/cm Ohm's law was satisfied, above these field strength
hyperlinear current increase was observed   For strong fields,

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